

What is claimed is:

[Claim 1] A thermal wall system comprising:

a top track including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending downward at approximately right angles to the web;

a top plate including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending downward at approximately right angles to the web, wherein the top plate is disposed in the top track such that the respective webs and first flanges are in close and complementary registration and a longitudinal opening is formed between the second flanges;

a bottom track including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending upward at approximately right angles to the web;

a bottom plate including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending upward at approximately right angles to the web, wherein the top plate is disposed in the top track such that the respective webs and first flanges are in close and complementary registration and a longitudinal opening is formed between the second flanges; and

vertical studs mounted to and extending between the top plate and bottom plate,

wherein the top track and bottom track oppose each other, the top plate and bottom plate oppose each other, and the longitudinal openings oppose each other.

[Claim 2] The thermal wall system of claim 1, further comprising rigid insulation generally distributed about a plane and disposed between the top and bottom tracks, including two approximately horizontal edges respectively disposed in the longitudinal openings and two approximately vertical edges.

[Claim 3] The thermal wall system of claim 2, further comprising a vertical thermal framing component extending between the top and bottom plates, the thermal framing component including a web perpendicular to the rigid insulation plane and projections from each edge at right angles to the web in both directions, such that a slot is formed on each side of the web.

[Claim 4] The thermal wall system of claim 3, further comprising a plurality of thermal framing components interposed between studs.

[Claim 5] The thermal wall system of claim 3, further comprising a plurality of thermal framing components mounted to the second flange of the top and bottom plates.

[Claim 6] The thermal wall system of claim 3, further comprising a plurality of thermal framing components mounted to studs that are steel or wood.

[Claim 7] The thermal wall system of claim 3, wherein a vertical edge of the rigid insulation is disposed in a slot of the thermal framing component.

[Claim 8] The thermal wall system of claim 3, further comprising approximately horizontal blocking between the vertical studs and mounted to the studs approximately half way between the top plate and bottom plate, wherein the thermal component is mounted to the blocking.

[Claim 9] The thermal wall system of claim 3, wherein the thermal framing component comprises:

an elongated planar web including a longitudinal axis, a first edge parallel to the longitudinal axis, a second edge parallel to the longitudinal axis, a first side, and a second side;

a first tab extending from the first edge at approximately a 90 degree angle from the first side;

a second tab extending from the first edge at approximately a 90 degree angle from the second side; and

a third tab extending from the second edge at approximately a 90 degree angle from the second side.

[Claim 10] A thermal wall system as recited in claim 2, further comprising a thermal end cap including an approximately vertical web with flanges projecting from each edge at approximately right angles to one side of the web, wherein one approximately vertical edge of rigid insulation is disposed between the flanges.

[Claim 11] A thermal wall system comprising:

a top track including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending downward at approximately right angles to the web;

a top plate including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending downward at approximately right angles to the web, wherein the top plate is disposed in the top track such that the respective webs and first flanges are in close and complementary registration and a longitudinal opening is formed between the second flanges;

a bottom track including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending upward at approximately right angles to the web;

a bottom plate including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending upward at approximately right angles to the web, wherein the top plate is

disposed in the top track such that the respective webs and first flanges are in close and complementary registration and a longitudinal opening is formed between the second flanges;

vertical studs mounted to and extending between the top plate and bottom plate;

vertical thermal framing components interposed between the studs and extending between the top and bottom plates, each including:

an elongated planar web including a longitudinal axis, a first edge parallel to the longitudinal axis, a second edge parallel to the longitudinal axis, a first side, and a second side;

a first tab extending from the first edge at approximately a 90 degree angle from the first side;

a second tab extending from the first edge at approximately a 90 degree angle from the second side;

a third tab extending from the second edge at approximately a 90 degree angle from the second side, wherein the second and third tabs form a slot; and

a fourth tab extending from the second edge at approximately a 90 degree angle from the first side, wherein the first and fourth tabs form a slot; and

a plurality of rigid insulation sheets disposed between the top and bottom tracks, each sheet including two approximately horizontal edges respectively disposed in the longitudinal openings and two approximately vertical edges, each of which is disposed in a slot,

wherein the top track and bottom track oppose each other, the top plate and bottom plate oppose each other, and the longitudinal openings oppose each other.

[Claim 12] The thermal wall system of claim 11, further comprising a thermal end cap including an approximately vertical web with flanges projecting from each edge at approximately right angles to one side of the web, wherein one approximately vertical edge of rigid insulation is disposed between the flanges.

[Claim 13] A thermal end cap for use in a thermal wall system, the thermal wall system including rigid insulation with an approximately vertical edge, the thermal end cap comprising an approximately vertical web with flanges projecting from each edge at approximately right angles to one side of the web, wherein the approximately vertical edge of rigid insulation is disposed between the flanges.

[Claim 14] A method of assembling a thermal wall system, comprising:
providing a top plate including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending downward at a right angle to the web;
providing a bottom plate including a web in an approximately horizontal plane, a first flange, and a second flange, the flanges extending upward at a right angle to the web;
providing approximately vertical studs;
mounting one end of at least two studs to the top plate and the other end to the bottom plate;
providing a top track having a web in an approximately horizontal plane, an interior flange, and an exterior flange, the flanges extending downward at a right angle to the web;
providing a bottom track having a web in an approximately horizontal plane, an interior flange, and an exterior flange, the flanges extending upward at a right angle to the web;
mounting the top track or bottom track to the respective top plate or bottom plate, wherein the respective plate is disposed in the selected track such that the plate and track respective webs and first flanges are in close and complementary registration and a first longitudinal opening is formed between the second flanges;
providing at least one rigid insulation sheet to fit between the top and bottom track and corresponding longitudinal openings;

inserting one horizontal edge of the rigid insulation sheet into the first longitudinal opening;

mounting the remaining track to the respective remaining plate, wherein the remaining plate is disposed in the remaining track such that the remaining plate and remaining track respective webs and first flanges are in close and complementary registration and a second longitudinal opening is formed between the second flanges, wherein the other horizontal edge of the rigid insulation sheet is inserted in the second longitudinal opening.

[Claim 15] The method of assembling a thermal wall system of claim 14, further comprising:

providing at least two vertical thermal framing components, each including a web and projections from each edge at right angles to the web in both directions, such that a slot is formed on each side of the web;

mounting the thermal components to the top and bottom plates before mounting the top and bottom tracks to the respective plates; and

inserting each approximately vertical edge of the rigid insulation sheet into at least one thermal framing component slot.

[Claim 16] The thermal wall system of claim 15, wherein providing at least two thermal framing components comprises providing thermal framing components including:

an elongated planar web including a longitudinal axis, a first edge parallel to the longitudinal axis, a second edge parallel to the longitudinal axis, a first side, and a second side;

a first tab extending from the first edge at approximately a 90 degree angle from the first side;

a second tab extending from the first edge at approximately a 90 degree angle from the second side; and

a third tab extending from the second edge at approximately a 90 degree angle from the second side.

[Claim 17] A method of assembling a thermal wall system as recited in claim 15, further comprising:

providing horizontal blocking;
mounting the horizontal blocking between the vertical studs approximately half way between the top plate and bottom plate; and
mounting the thermal components to the blocking.

[Claim 18] A method of assembling a thermal wall system as recited in claim 14, further comprising:

providing a thermal end cap comprising a vertical web with opposing flanges projecting from each edge at right angles to one side of the web; and
mounting the thermal end cap on a vertical edge of a rigid insulation sheet, wherein the edge of the insulation is between the flanges.